3.3.2.1 Great Lakes Barrens

3.3.2.1.1 Community Overview

This globally rare community type is a variant of the pine barrens community and is known primarily from sandspits in the Apostle Islands. It was historically of limited extent, and occurred on sandspits and dunes along the Great Lakes shorelines. The very small number of occurrences makes it difficult to characterize the type with confidence. Lake Superior occurrences are almost entirely lacking in the representation of prairie species. Instead, the groundlayer is composed mostly of lichens, fungi, grasses, sedges, ericaceous shrubs and sub-shrubs, and a limited number of flowering herbs. The dominant trees in the more open stands are pines, especially red pine, which are widely scattered, and demonstrate the limb architecture that develops under open-grown conditions, as well as wind and fire deformities. Eastern white pine may be present, and jack pine is now dominant in a few areas that have high restoration potential. The understory consists of dense carpets of lichens, scattered thickets of common juniper, patches of early blueberry, huckleberry, and sand cherry. Other common plants include crinkled hairgrass, ticklegrass, false-heather, sand cress, and bearberry.

The extremely xeric site conditions and periodic past wildfires have maintained this community over time. Fire scars on living pines and snags from Stockton Island in the Apostles Archipelago revealed highly variable fire frequencies, ranging from multiple fires within a five year period to the passage of decades with no evidence of fire whatsoever (E. Epstein, personal observation 1988). Associated natural communities include Great Lakes beach, Great Lakes dune, interdunal wetland, and northern dry forest.

3.3.2.1.2 Vertebrate Species of Greatest Conservation Need Associated with Great Lakes Barrens

Three vertebrate Species of Greatest Conservation Need were identified as moderately or significantly associated with Great Lakes barrens (Table 3-69).

Table 3-69. Vertebrate Species of Greatest Conservation Need that are (or historically were) moderately or significantly associated with Great Lakes barrens communities.

Species Significantly Associated with Great Lakes Barrens
Herptiles
Wood Turtle
Blanding's Turtle
Species Moderately Associated with Great Lakes Barrens
Mammals
Northern Flying Squirrel

In order to provide a framework for decision-makers to set priorities for conservation actions, the species identified in Table 3-69 were subject to further analysis. The additional analysis identified the best opportunities, by Ecological Landscape, for protection, restoration, and/or management of both Great Lakes barrens and associated vertebrate Species of Greatest Conservation Need. The steps of this analysis were:

- Each species was examined relative to its probability of occurrence in each of the 16 Ecological Landscapes in Wisconsin. This information was then cross-referenced with the opportunity for protection, restoration, and/or management of Great Lakes barrens in each of the Ecological Landscapes (Tables 3-70 and 3-71).

- Using the analysis described above, a species was further selected if it had both a significant association with Great Lakes barrens and a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of Great Lakes barrens. These species are shown in Figure 3-9.

Table 3-70. Vertebrate Species of Greatest Conservation Need that are (or historically were) *significantly* associated with Great Lakes barrens communities and their association with Ecological Landscapes that support Great Lakes barrens.

Great Lakes Barrens

Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type	Herptiles (2)*	
	Wood Turtle	Blanding's Turtle
MAJOR		
Superior Coastal Plain		
PRESENT (MINOR)		
Northern Lake Michigan Coastal		

*** The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.**

Color Key

- = **HIGH probability the species occurs in this Ecological Landscape**
- = **MODERATE probability the species occurs in this Ecological Landscape**
- = **LOW or NO probability the species occurs in this Ecological Landscape**

Table 3-71. Vertebrate Species of Greatest Conservation Need that are (or historically were) *moderately* associated with Great Lakes barrens communities and their association with Ecological Landscapes that support Great Lakes barrens.

Great Lakes Barrens Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type	Northern Flying Squirrel Mammals (1)*
MAJOR	
Superior Coastal Plain	
PRESENT (MINOR)	
Northern Lake Michigan Coastal	

Color Key

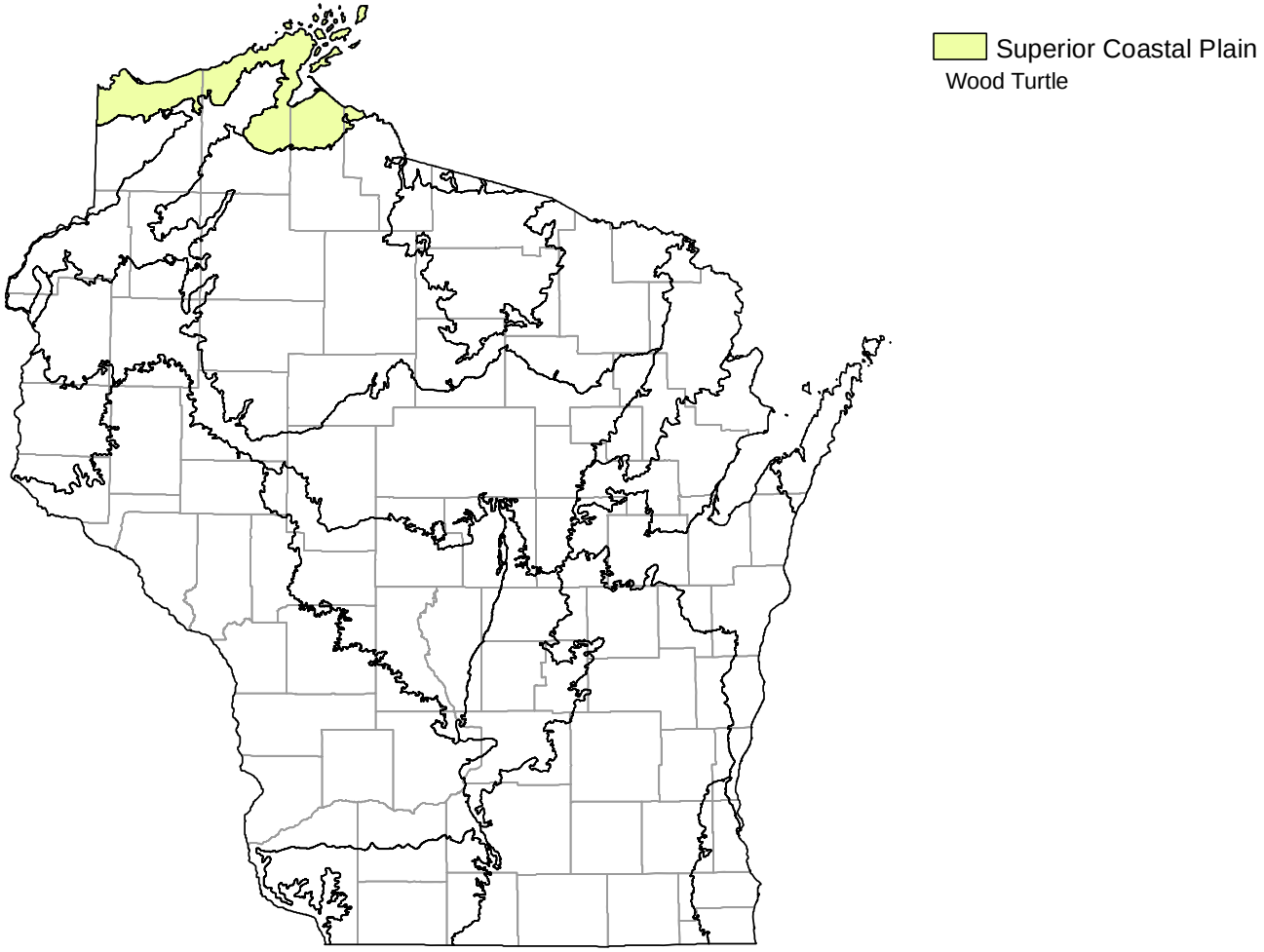
= HIGH probability the species occurs in this Ecological Landscape

= MODERATE probability the species occurs in this Ecological Landscape

= LOW or NO probability the species occurs in this Ecological Landscape

*** The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.**

Figure 3-9. Vertebrate Species of Greatest Conservation Need that have ***both* a significant association with Great Lakes barrens ***and*** a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of Great Lakes barrens.**



3.3.2.1.3 Threats and Priority Conservation Actions for Great Lakes Barrens

3.3.2.1.3.1 Statewide Overview of Threats and Priority Conservation Actions for Great Lakes Barrens

The following list of threats and priority conservation actions were identified for Great Lakes barrens in Wisconsin. The threats and priority conservation actions described below apply to all of the Ecological Landscapes in Section 3.3.2.1.3.2 unless otherwise indicated.

Threats and Issues

- The few remaining sites are small and isolated.
- The sandy substrate, sparse vegetation, and slow recovery time makes this community fragile. It will not stand up to heavy foot traffic, and vehicle traffic will cause lasting damage.
- Occurrences require meaningful protection from inappropriate uses if damage to the soils and flora is to be avoided.
- Several sandspit sites that historically supported open or savanna-like barrens vegetation with scattered trees have now succeeded to dense forests due to the lack of fire disturbance. These areas are now dominated by either jack pine; combinations of pines, common juniper, deciduous shrubs, and thickets of small balsam fir; or stands of northern pin oak.
- Invasive plants are currently not a large problem, but spotted knapweed and leafy spurge are potential threats for this type.

Priority Conservation Actions

- Known occurrences should be monitored closely for signs of overuse and the presence of invasive plants.
- Additional research is needed to clarify the fire history of the barrens on sandspits and develop plans for appropriate prescribed burn regimes.
- Restoration may be an option at a few sites within the Apostle Islands National Lakeshore, and should be investigated further.
- Non-vascular plants and invertebrates should be characterized prior to initiating a broadscale prescribed burning plan.
- Burn units should be designed with great care due to the limited amount of this type now available and the potential presence of fire-sensitive invertebrates.

3.3.2.1.3.2 Additional Considerations for Great Lakes Barrens by Ecological Landscape

Special considerations have been identified for those Ecological Landscapes where major or important opportunities for protection, restoration, and/or management of the Great Lakes barrens exist. Those considerations are described below and are in addition to the statewide threats and priority conservation actions for Great Lakes barrens found in Section 3.3.2.1.3.1.

Additional Considerations for Great Lakes Barrens in Ecological Landscapes with ***Major*** Opportunities for Protection, Restoration, and/or Management

Superior Coastal Plain

The best opportunities to protect and manage this type are associated with sandscapes in the Apostle Islands. Stockton Island has the largest, least disturbed example, but there is management and/or restoration potential on several of the other islands.

Additional Considerations for Great Lakes Barrens in Ecological Landscapes with ***Important*** Opportunities for Protection, Restoration, and/or Management

Northern Lake Michigan Coastal

Protection and management opportunities away from Lake Superior are apparently extremely limited, but a few remnants have been identified in this Ecological Landscape. These sites are privately owned, and all are extremely small, with the largest known barrens remnant only a few acres in size. In contrast to the occurrences on Lake Superior, at least one of the sites on Lake Michigan supports a flora composed mostly of prairie species. Additional survey work to identify or better describe remnants should include the Green Bay Islands with sandy soils (e.g., Chambers Island), and also consider some of the sandy regions in the vicinity of the towns of Peshtigo and Marinette.